APPENDIX E

ELEMENTS OF THE LONG TERM CSO CONTROL PLAN
FOR THE CITY OF CHICOPEE, MASSACHUSETTS

1. Chicopee's Long Term CSO Control Plan shall be designed to accomplish the requirements set forth in Paragraph 12 of the Consent Decree.

2. The Long Term CSO Control Plan shall include, at a minimum, the elements described below.

3. System Characterization. The purpose of the system characterization shall be to support the modeling and alternative evaluation efforts described in Paragraphs 4 and 5, below. The system characterization must include the following:

(a) A description of the physical characteristics and attributes of the Chicopee sewer system tributary to its publicly-owned wastewater treatment plant. The description shall be compiled from existing records with field confirmation of pipe and appurtenance characteristics. If necessary, data shall be collected to augment existing records to produce a complete and accurate description of those portions of the system to be modeled. Pipe characteristics shall include diameter, shape, length, slope, elevation and interior surface condition (*i.e.*, representative friction coefficients). Appurtenance characteristics shall include shape, size, elevation, interior condition and capacity as appropriate.

(b) A description of the collection system. The description shall include a schematic of the collection system, including all pipes above a diameter of eight inches, the direction of flow in these pipes, their material of construction where information presently exists, all pump stations and force mains, all overflow points, regulators, and other control structures, and all permitted discharge points.

(c) A description of how the wastewater collection and treatment systems responds to a range of precipitation events by identifying the frequency and volumes of overflow discharged from each discharge point.

4. Collection System Model. The City of Chicopee shall develop a collection system model as to aid in the identification of a range of potential water pollution treatment/control alternatives.

(a) Hydraulic Model. At a minimum, the hydraulic model of the sewer system shall be capable of predicting the following in sewers and force mains, subject to modeling as defined in Paragraph 4(b), below:

(i) volume of wastewater flow, under both dry and wet conditions, in the force mains and major interceptor sewer lines;

(ii) hydraulic pressure or hydraulic grade line of wastewater at any point in the force mains and major interceptor sewer lines;

(iii) flow capacity of each pump station;

(iv) the flow capacity of all major interceptor sewer lines;

(v) the peak flows during wet weather and dry weather conditions for each pump station and major interceptor sewer lines;

(vi) the likelihood, location, duration and volume of discharge from each discharge location for a range of precipitation events;

(vii) wet weather flows from tributary separate sewer areas, including estimating wastewater flow, and precipitation-induced Infiltration/Inflow; this subparagraph shall not be construed to require a Sanitary Sewer Evaluation Study ("SSES"); and

(viii) the peak instantaneous and sustained flows for a variety of storm events.

(b) Water Quality Monitoring and Modeling Program. Chicopee as conducted in-stream water quality monitoring to identify the impact of overflow discharges to the Connecticut River and the Chicopee River under a range of wet weather events. Because the Massachusetts Water Quality Standards must be met everywhere in the rivers at all times, any wet-weather discharge from the City's CSOs will result in a violation of the WQSs. Accordingly, EPA and DEP have determined that Chicopee's development of a model to assess the water quality impacts that result from CSOs is not necessary in the development of the Long Term CSO Control Plan. Nonetheless, the cities of Springfield, Holyoke, and Chicopee are in the process of developing a regional water quality model to determine the areal extent of WQS violations from the CSO discharges from all communities and, with the water quality monitoring as its basis, to assess the improvements to be attained from the identified alternatives. Chicopee shall continue to work on developing this regional water quality model and shall incorporate such model in development of alternatives for addressing the City's CSOs if such model is available.

5. Alternatives Evaluation. Chicopee shall identify, screen, develop, and evaluate alternatives which shall provide for measures necessary to ensure that CSO discharges from all CSO discharge outfalls comply with the technology based and water quality based requirements of the CWA, state law and regulation, and Chicopee's NPDES permit. At a minimum, the alternatives evaluation shall perform the following activities:

(a) Give highest priority to controlling overflows to sensitive areas. Sensitive areas, as determined by the NPDES authority in coordination with state and federal agencies, as

appropriate, include but are not limited to designated Outstanding National Resource Waters, National Marine Sanctuaries, waters with threatened or endangered species and their habitat, waters with primary contact recreation, public drinking water intakes or their designated protection areas, and shellfish beds. For such areas, the alternative remedies identified under this Long Term CSO Control Plan should:

(i) prohibit new or significantly increased overflows;

(ii) eliminate or relocate overflows that discharge to sensitive areas wherever technically feasible and economically reasonable, except where elimination or relocation would provide less environmental protection than additional treatment; and

(iii) where elimination or relocation is not physically possible and economically achievable, or would provide less environmental protection than additional treatment, provide the level of treatment for remaining overflows deemed necessary to meet water quality standards for full protection of existing and designated uses.

(b) Develop goals and objectives for CSO control consistent with control needs identified through the water quality modeling and water quality impact analysis and with water uses for the Connecticut River and the Chicopee River.

(c) Screen an appropriate range of technologies for eliminating, reducing, or treating CSO discharges, including an evaluation of varying levels of control such as complete elimination and alternatives that will reduce the volume of CSO discharges and the number of untreated CSOs down to a range of overflows per CSO outfall per year (0, 1 to 4, and 5 to 8). This preliminary screening summary shall consider and summarize various technologies, including but not limited to:

(i) no action;

(ii) partial separation of various portions of the combined sewer system;

(iii) installation of various sizes of storage or equalization basins at the Chicopee facilities and/or in the sewer system;

(iv) construction of high rate solids removal facilities capable of providing the equivalent of primary treatment;

(v) construction of new intercepting sewers from the sewer system to the facilities;

(vi) construction of facilities for providing disinfection (and dechlorination, if necessary) of CSO charges;

(vii) construction of facilities for removing floatables from CSO discharges;

(viii) construction of relief sewers; and

(ix) removal of storm water sources (such as roof and driveway drains) from the combined sewer system. This preliminary screening shall result in the identification of an appropriate list of technologies for further evaluation.

(d) Develop in detail and evaluate system-wide alternatives based on the technologies advanced from preliminary screening or combinations of these technologies. The technologies advanced from preliminary screening will be applied to develop system-wide CSO control alternatives. The detailed evaluation of alternatives shall consider the costs, effectiveness (in terms of overflow volume reduction, pollutant loading reductions, etc.) and the water quality improvements of the appropriate system-wide alternatives, including a comparison of the costs per unit of measure (in mass) of pollutants removed from the discharge for each of the alternatives that are being considered. The detailed evaluation shall be performed utilizing the guidance presented in the "Evaluation of Alternatives for CSO Control" portion of EPA's "Combined Sewer Overflows Guidance for Long-Term Control Plan," EPA-832-B-95-002, September 1995. Priority shall be given to alternatives which maximize treatment at the existing POTW. In performing the evaluation, Chicopee shall use the results of the hydraulic model and the water quality model. The City shall submit its detailed evaluation of alternatives to EPA and DEP for approval.

(e) Evaluate Chicopee's financial capability to fund the selected alternative or combination of alternatives, including an analysis of:

(i) median household income/total project cost per household;

(ii) per capita debt as a percent of full market property value;

(iii) property tax revenues as a percent of full market property value;

(iv) property tax collection rate;

(v) unemployment rate;

(vi) current and projected residential, commercial and industrial user fees;

(vii) bond rating;

(viii) bond capacity for the next twenty years;

(ix) grant and/or loan eligibility and availability;

(x) other viable funding mechanisms and sources of financing; and

(xi) other factors which may be applicable to the financial evaluation.

6. Remedy Selection. The City shall submit for review and approval by EPA and DEP a description of the measures the City proposes as final CSO discharge control measures, including the construction of all sewer system and facility improvements, necessary to ensure compliance with water quality standards.

7. Remedy Implementation. Chicopee shall submit for review and approval by EPA and DEP an expeditious implementation schedule consistent with the financial capabilities documented in Paragraph 5(e), above, for the design, construction, and implementation of all proposed discharge control measures identified by Chicopee or approved by EPA and DEP pursuant to Paragraph 6, above. If it is not feasible for Chicopee to design and construct all such measures simultaneously, the proposed implementation schedule may provide for implementation of the discharge control measures in a series of discrete projects, in which event the proposed implementation schedule shall include a detailed description of the scope of each proposed project and a phased schedule providing for the design and construction of each such project. Any such phased schedule shall take into account the relative importance of each discharge control measure, with highest priority being given to eliminating discharges to sensitive areas and to those projects which most reduce the discharge of pollutants. The implementation schedule shall specify critical milestones for each specific measure.

8. Post-Construction Monitoring. The Long Term CSO Control Plan shall include a post-construction monitoring program which will result in the assessment of the effectiveness of the selected and completed CSO discharge controls for CSO outfalls that are not eliminated. This program shall be consistent with the guidance "Combined Sewer Overflows Guidance for Long-Term Control Plan."

9. Public Participation. The City shall employ a public participation process that ensures that the affected public is actively involved in the selection of appropriate CSO controls. The public shall be kept informed of information including, but not limited to, water quality goals, CSO control goals, the types of control alternatives available and being considered to meet CSO control goals, and the process of evaluating various CSO control alternatives. The Long Term CSO Control

Plan shall detail the process by which the public will be provided an opportunity to participate in the development of the Long Term CSO Control Plan.

10. All data, reports, plans, schedules, or any other documents to be submitted pursuant to this Appendix shall be submitted to EPA and DEP for approval.